



Impact of a 12-week wellness coaching on self-care behaviors among primary care adult patients with prediabetes

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ABSTRACT

This single arm prospective study assessed the impact of individualized wellness coaching intervention for primary care patients with prediabetes on self-reported changes in physical activity level and food choices. Five hundred sixty adult patients 18 years and older with prediabetes, seen in primary care clinic, were invited to participate in 12 weeks wellness coaching sessions delivered by certified coaches. Responses from questionnaires at baseline, 6 and 12 weeks were analyzed. Of 168 consented patients, 99 completed at least one coaching session; majority was elderly, female, overweight or obese. At baseline, 50% had < 60 min aerobic exercise/week. At 6 and 12 weeks, average aerobic exercise time significantly increased from 117 min to 166 and 199 min respectively. Effect was sustained at 24 weeks. Success in making healthy eating choices also statistically improved from baseline. Significant effects on both activity level and eating behavior persisted even after adjusting for age, sex and baseline glucose/A1c values. Secondary outcomes of self-efficacy and quality of life likewise showed significant improvement. Results suggest that integration of wellness coaching in primary care practice among individuals at high risk for diabetes is feasible and may be useful as part of diabetes prevention management strategies in target populations. Future randomized clinical trials are needed to further explore this issue.

1. Introduction

About 37% of U.S. adults have prediabetes based on fasting glucose or hemoglobin A1C levels (National Diabetes Statistics Report, 2014). These individuals are at high risk of progressing to type 2 diabetes; about 70% are expected to develop diabetes within 10 years (Tabak et al., 2012). Our recent study which involved a cohort of 10,000 individuals with prediabetes, showed an estimated incidence rate of progression to diabetes of 40.24 per 1000 person years at 5 years (DeJesus et al., 2017).

Fortunately, progression of prediabetes to diabetes may be prevented or delayed with moderate weight loss (5–7% total body weight)

achieved through positive lifestyle interventions (Knowler et al., 2002; Perreault et al., 2014; Stevens et al., 2015). The US Diabetes Prevention Program (DPP), the largest study conducted to date, reported a 58% risk reduction in diabetes onset after interventions aimed at weight loss, dietary change and increased physical activity (Knowler et al., 2002). However, given the high recidivism in weight management, the challenge is to enable individuals to initiate and maintain healthy lifestyle changes.

Wellness coaching is a novel approach to diabetes prevention that offers a focused self-management support program. Health education alone may not sufficiently initiate and sustain long term behavioral change; there are situations where wellness coaches can better enhance

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motivation, and guide patients towards behavior change. As a patient-centered intervention, wellness coaching has been shown to achieve sustained behavioral change and clinical outcomes (McGowan, 2011; Tang et al., 2012).

Previous research has demonstrated that when used in chronic disease management, wellness coaching enhances self-management skills in patients with diabetes and helps reduce readmissions in those with chronic obstructive lung disease (Wong-Rieger and Rieger, 2013; Benzo et al., 2016). In a review of 15 randomized health coaching interventions, six were able to demonstrate significant improvements in targeted behaviors such as physical activity and medication adherence (Olsen and Nesbitt, 2010). A study conducted by Clark and colleagues concluded that wellness coaching was associated with improvement in 3 areas of psychosocial functioning: quality of life, mood and perceived stress (Clark et al., 2014). Participants also improved their self-reported health behaviors, and goal setting skills (Clark et al., 2016). Integrating wellness coaching within primary care practice has been found to be a feasible model for diabetes care which can be done without significant additional resources (Liddy et al., 2014). It has also been shown to be well received by patients and physicians in primary care setting (Neuner-Jehle et al., 2013).

While wellness coaching conducted in health care settings has been shown to be effective in chronic disease and weight management, (Wong-Rieger and Rieger, 2013; Benzo et al., 2016; Schmittiel et al., 2017) its use among patients who do not have a chronic disease but who are at high risk for it has not been widely explored. The DPP focused on a well-structured curriculum that included supervised physical activity sessions supported by individual case managers who functioned as “lifestyle coaches” (Knowler et al., 2002). As health care systems in the U.S. transition to population health care delivery approaches, there is need to create programs that will help prevent chronic diseases progression among high risk population group without creating additional burden to practice and available resources. Therefore, this project's aim was to examine the feasibility of engaging our high risk patients towards healthy lifestyle behavior solely with wellness coaching. We conducted a cohort study to assess whether an individualized 12-week wellness coaching intervention would improve self-reported changes in physical activity level and food choices among primary care patients with prediabetes. We hypothesized that a 12-week wellness coaching intervention would result in positive lifestyle changes demonstrated by increased self-reported level of physical activity and healthier food choices.

2. Design

2.1. Study population

Approximately 10% of the population served by our primary care practice has prediabetes (DeJesus et al., 2017). In this prospective study, five hundred sixty patients with prediabetes, paneled to a provider in Primary Care Internal Medicine (PCIM), in Mayo Clinic Rochester, were invited to participate through mailed-out recruitment letters. Inclusion criteria were: adults 18–80 years of age with prediabetes based on the American Diabetes Association's definition of fasting plasma glucose 100 to < 126 mg/dL or HbA1c 5.7–6.4% (Diagnosis and classification of diabetes mellitus, 2013) as the most recent value in the electronic medical record within 12 months of recruitment date, able to participate fully in all aspects of the study and able to provide written informed consent. Laboratory result values from blood draws obtained in the inpatient setting or during pregnancy were excluded. Also excluded were: patients with a diagnosis of diabetes, based on two documented ICD-9 codes for diabetes at least 30 days apart in the past five years, individuals who did not speak and read English, were institutionalized, had cognitive impairment, had an active untreated clinically significant psychiatric condition (psychosis, bipolar disorder, or depression) or had newly diagnosed clinical

depression based on Physician Health Questionnaire (PHQ-9) score ≥ 10 . The PHQ-9 is a well validated screening tool for depression in the general population with an accepted diagnostic cut-off point of 10 (Gilbody et al., 2007; Moriarty et al., 2015).

Baseline questionnaires and HIPAA authorization forms were mailed with the recruitment letters; consented participants were requested to complete and mail them back. A Clinical Research Coordinator (CRC) contacted invited patients who did not opt out to verify completion of study questionnaires including the PHQ-9 and initiate enrollment. Patients with score of 10 or higher who were not actively being followed for depression or had not been previously diagnosed with depression, were instructed by the CRC to meet with the study physician for clinical assessment and referral for treatment as appropriate. If they refused, they were recommended to contact their primary care physician. Once inclusion criteria were met, participants were scheduled for an initial wellness coaching session. The study was approved by the institutional review board of the Mayo Clinic Rochester.

2.2. Intervention

Four certified wellness coaches delivered the intervention. Wellness coaches in this project had at least a four year degree and had received training and certification from the Mayo Clinic Wellness Coaching Training Program. Training included skill building in goal setting, communication skills, motivational interviewing techniques and professional ethics (Neuner-Jehle et al., 2013). Wellness coaches learned a strength based approach which incorporated the 5 E's: engage, explore, envision, experiment and evolve. The wellness coaching program consisted of 12 sessions which were completed within 16 weeks and were conducted at the participants' primary clinic site. The coaches were asked to complete a fidelity checklist during each session; this ensured intervention standardization. The checklist included agenda setting, progress review, collaborative problem-solving, engaging education, setting/refining goals, teaching back and completing intervention on time. While coaching was individualized and centered on participants' wellness goals, the coaches were requested to primarily address goals related to physical activity, healthy eating behavior or both. This was specified under “engaging education” step in the checklist. The initial wellness coaching session was conducted face-to-face to assess the participant's strengths, motivation to change and perceived barriers. Participants then determined their preferred approach for the subsequent visits: in-person or telephone-based wellness coaching. In-person coaching sessions were all conducted within the primary care clinic setting which enabled the coaches to interface with the primary care providers. Consistent with clinical practice, wellness coaches collected adherence data throughout the study period, including attendance and discussion points. Participants needed to complete 6 of 12 wellness coaching sessions to be classified as study completer.

3. Methods

3.1. Data collection

Study participants were asked to complete mailed out study questionnaires before their first wellness coaching session (baseline, week 0), at 6 weeks, at the end of wellness coaching (12 weeks) and at 24 weeks. A satisfaction survey was also administered after the last wellness coaching session.

3.2. Study questionnaires

The Stanford Patient Education Research Center 6-item exercise behavior questionnaire was used to measure both aerobic and combination stretching/strengthening exercise (Lorig et al., 1996; Stanford chronic disease self-management education program, n.d.). Item 1

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